

TITLE OF THE INVENTION

A CHEMICAL INDUCIBLE PROMOTER USED TO OBTAIN TRANSGENIC PLANTS
WITH A SILENT MARKER

5 CROSS REFERENCE TO RELATED APPLICATIONS

This is a continuation in part of Serial No. 09/014,592, filed 28 January 1998, now
allowed, which is incorporated herein by reference.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH

10 This application was made in part with Government support under DOE Grant #FG02-
94ER20142, funded by the Department of Energy.

BACKGROUND OF THE INVENTION

15 Transgenic techniques have become a powerful tool for addressing important biological
problems in multicellular organisms, and this is particularly true in the plant field. Many
approaches that were impossible to implement by traditional genetics can now be realized by
transgenic techniques, including the introduction of homologous or heterologous genes into
plants, with modified functions and altered expression patterns. The success of such techniques
often depends upon the use of markers to identify the transgenic plants and promoters to control
the expression of the transgenes.

20 Selectable markers are widely used in plant transformation. Historically such markers
have often been dominant genes encoding either antibiotic or herbicide resistance (Yoder and
Goldsbrough, 1994). Although such markers are highly useful, they do have some drawbacks.
The antibiotics and herbicides used to select for the transformed cells generally have negative
25 effects on proliferation and differentiation and may retard differentiation of adventitious shoots
during the transformation process (Ebinuma et al., 1997). Also, some plant species are
insensitive to or tolerant of these selective agents, and therefore, it is difficult to separate the
transformed and untransformed cells or tissues (Ebinuma et al., 1997). Further, these genes are
constitutively expressed, and there are environmental and health concerns over inserting such
30 constitutively expressed genes in plants which are grown outside of a laboratory setting (Bryant
and Leather, 1992; Gressel, 1992; Flavell et al., 1992).